Remarks

Upon entry of the present amendment, claims 1-2, 4, 8-9, 19-26 and 43-51 will be pending. Claims 3, 5-7, 10-18 and 27-42 have been canceled without prejudice or disclaimer. Applicants reserve the right to pursue the canceled subject matter in continuing applications.

Claims 1, 4, 19 and 22 have been amended to clarify that which Applicants consider the claimed invention, as well as to address particular formalities raised by the Patent Office, as discussed below. Such amendments find support throughout the present specification and the originally filed claims, thus no new matter has been introduced.

Claims 43 to 51 are newly added and find support throughout the present specification, for example, in Table 6, on page 20 as well as in the originally filed claims. As a result, no new matter has been introduced.

On page 4 of the Office Action, the specification has been objected to for an alleged improper use of trademarks. Applicants have appropriately corrected what can be determined and respectfully submit that the generic name for SYNAGIS is palivizumab, which was well-known and understood at the time the present invention was filed. Should the Patent Office find additional trademarks that should be amended, Applicants would be happy to further amend the specification. Thus, Applicants respectfully request withdrawal of this objection.

On page 4 of the Office Action, claims 22-26 have been objected to because of informalities. Applicants have amended claim 22 and respectfully request withdrawal of this claim objection.

On page 5 of the Office Action, claims 1-9 and 19-26 have been rejected because of an alleged failure to comply with 35 U.S.C. § 112, first paragraph, written description. Without acquiescing to the rejection, as a first matter, claims 3, 5-7 have been canceled and therefore rendered moot with respect to the rejection. As to the remaining claims, and presumably to new claims 43-51, Applicant respectfully disagree.

Applicants have recited which Kabat amino acid residue positions in the hinge and heavy chain constant region may be substituted to achieve the function of improved resistance to heat degradation as claimed. These are the common features that define the class of immunoglobulins of the present invention. New claims 43-51 recite which amino acid substitutions at which positions are contemplated to achieve the same. Such substitutions are clearly taught throughout the present specification, and particularly in Table 6. As a result, the amended claims and newly added claims find clear written description support in the present specification and Applicants respectfully request reconsideration and withdrawal of the present rejection.

On page 9 of the Office Action, claims 1-9 and 19-26 have been rejected for an alleged lack of enablement under 35 U.S.C. § 112, first paragraph. Again, without

acquiescing to the rejection, as a first matter, claims 3, 5-7 have been canceled and therefore rendered moot with respect to the rejection. As to the remaining claims, and presumably to new claims 43-51, Applicant respectfully disagree.

Applicants respectfully submit that the amended claims and newly added claims are fully enabled by the present specification. For example, not only does the present specification teach which amino acid substitutions can be made in which Kabat positions in the hinge or heavy chain constant region to achieve improved degradation resistance to heat (see for example, section 5.4 of the present specification), the specification also teaches how one of skill can substitute such amino acids (see, for example, section 5.3.1 of the present specification) as well as how one can test for improved stability (see, for example, section 5.2 of the present specification).

The Patent Office cites Bowie et al as alleged evidence that amino acid modifications can result in unpredictable protein folding and function. Applicants respectfully submit that the claimed invention is a result of experimental evidence presented in the present specification, and now claimed (see, for example, Tables 1-4, Figures 1-12 and the Examples section of the present specification). As a result, one of skill is not left to "guess" at which modifications need to be made in order to achieve improved resistance to heat degradation, as alleged in the Office Action. Since the present specification fully enables the invention as now claimed, Applicants respectfully request reconsideration and withdrawal of the rejection.

On page 11 of the Office Action, claims 1-9 and 19-26 have been rejected for allegedly being indefinite under 35 U.S.C. § 112, second paragraph. Again, without acquiescing to the rejection, as a first matter, claims 3, 5-7 have been canceled and therefore rendered moot with respect to the rejection. As to the remaining claims, and presumably to new claims 43-51, Applicant respectfully disagree.

As to claim 1, without acquiescing to the rejection, Applicants have amended it to further clarify the claimed invention. Applicants note that the inclusion of the recitation of as numbered according to the EU index as in Kabat is clear and definite to one of skill in the art in that it indicates the precise amino acid position in the hinge or heavy chain constant (CH) region of an immunoglobulin IgG. Applicants respectfully submit that the Kabat reference is a well-known and widely used reference text in the art at the time of filing the subject application and the EU index is a well-established standard numbering scheme for the hinge and CH region of IgG molecules. Applicants note that page 19, section 5.4, lines 18-21 clearly teach the 1991 Kabat reference used to identify the common amino acid residues in the hinge and CH regions of the IgG to modify.

An IgG molecule presents structural features that enabled the development of a standard number scheme, i.e., the EU index for the hinge and CH regions of IgGs. This standardization is possible because these regions of IgGs are conserved in terms of overall structure. In fact, the amino acid sequence structure of the CH region, for example, is practically invariant among antibodies of the same IgG isotype (i.e., IgG1, IgG2, IgG3, IgG4). Thus, a numbering scheme such as that of Kabat can be used to

number any CH region of an IgG molecule. As such, one of skill in the art would understand precisely which amino acids should be substituted to improve the resistance to heat denaturation as claimed. Thus, there is no need to recite a specific sequence as a SEQ ID NO. as suggested by the Patent Office.

In fact, the use of Kabat in claim recitations is not new to the Patent Office. Applicants respectfully submit that the following U.S. issued patents contain claims that recite amino acid residue numbering, according to the EU index of Kabat: Presta et al., U.S. Patent No. 7,122,637; Dall'acqua et al., U.S. Patent No. 7,083,784; and Co et al., U.S. Patent No. 6,913,747, for example. Thus, since such a numbering convention is well-known to those of skill in the art, as well as to the Patent Office, Applicants respectfully submit that claim 1 as amended is clear and definite to one of skill in the art, and respectfully request reconsideration and withdrawal of the rejection.

On page 12 of the Office Action, claims 5 and 19 have been rejected for allegedly being vague and indefinite under 35 U.S.C. § 112, second paragraph.

Without acquiescing to the rejection, Applicants note that as a first matter, claim 5 has been canceled, and therefore the rejection is moot.

As to claim 19, Applicants appreciate the Patent Office highlighting the obvious typographical error, and appropriate correction was made. As a result, Applicants respectfully request reconsideration and withdrawal of the rejections.

Conclusion

Applicants believe that the present claims meet all of the requirements for patentability. Entry and consideration of the foregoing amendments and remarks are respectfully requested. If a telephone interview would be of assistance in advancing prosecution of the subject application, the undersigned invites the Patent Office to phone her at the number provided below.

Respectfully submitted,

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